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Nota di contenuto	Cover -- Half Title -- Title Page -- Copyright Page -- Table of contents -- Preface -- AVEC'16 International Scientific Committee -- Advanced concepts of integrated tyre force control -- Development of vehicle dynamics characteristics using modern chassis systems for body control depending on the vehicle concept -- Optimization-based analysis of active suspension authority within integrated vehicle dynamics control systems -- Energy efficient torque vectoring control -- Steering redundancy for self-driving vehicles using differential braking -- ADAS -- Risk predictive safe speed control for collision avoidance in right turn dynamic environment situation -- Speed control for reduced risk of collision with oncoming vehicles in obstacle avoidance scenarios -- Torque-based steering assistance for collision avoidance during lane changes -- Enhancing path tracking performance by using haptic shared steering control combined with DYC -- Evaluation of an evasive manoeuvre assistance system at imminent side collisions -- Generalized predictive control based on vehicle path following strategy by using active steering system --

Target & control based lane keeping assistance system with center error correction algorithm -- Adaptation of ADAS-functions by identifying driver fingerprint -- DrivingCube - A novel concept for validation of powertrain and steering systems with automated driving -- Close to reality surrounding model for virtual testing of autonomous driving and ADAS -- Vehicle following -- Autonomous cruise control with cut-in target vehicle detection -- Padé approximation of delays in CACC-controlled string-stable platoons -- A vehicle following controller for highly-actuated vehicles -- Distributed receding horizon control of a platoon of multiple CAVs with discontinuous-gear transmissions.

Obstacle avoidance control design: An experimental evaluation in vehicle platooning -- Automated driving -- Collision avoidance system using state dependent Riccati equation technique: An experimental robustness evaluation -- Autonomous drifting with onboard sensors -- A new nonlinear model predictive control algorithm for vehicle path tracking -- Real-time optimal obstacle avoidance of MGVs using modified Carathéodory- solutions -- Control target algorithm for direction control of autonomous vehicles in consideration of mutual accordance in mixed traffic conditions -- Implementation of a modified Hamiltonian algorithm for control allocation -- Design of an automated steering controller with steering actuator dynamics and adaptive preview time -- Motion sickness in automated vehicles -- Path planning -- Study on update method of avoidance trajectory for the autonomous frontal obstacle avoidance system -- Development of collision probability based motion planning algorithm for automated driving vehicles -- Autonomous vehicle trajectory planning and control based on virtual disturbance compensation via simulation of feedback control systems -- A hierarchical controller for path planning and path following based on model predictive control -- Roll-over prevention and risk assessment -- A novel control mediation approach to active rollover prevention -- The noise of acceleration signal as an indicator of the loss of control risk -- Prediction based advanced emergency braking for vulnerable road users -- Lateral dynamics and optimization -- Torsional moment representation in lateral load transfer equations -- Optimizing suspension systems for feasibility, performance and cost -- Multi-objective cooperative control of vehicle stability with electro hydraulic brake -- Stability and modelling -- Straight ahead running of a non linear car and driver model.

Handling and stability control for an in-wheel-motor-driven electric vehicle -- Real-time simulation of elasto-kinematic multi-body vehicle models -- Control of a variable-geometry suspension as independent wheel steering -- Simulator and test-rig -- Model-based steering ECU application using offline simulation (software in the loop) -- Control system of a wheel-based "auto.mobile-driving simulator" -- Tire-suspension hardware-in-the-loop simulation system compensating delay of testing machine -- Evaluation of coupled suspension system using four electromagnetic dampers by motor HILS system -- Driver -- Investigation on the lane tracking steering control with two preview points to make preview time shorter -- Bayesian network-based identification of driver lane-changing intents using eye tracking and vehicle-based data -- Influence of different ground truth hypotheses on the quality of Bayesian networks for maneuver detection and prediction of driving behavior -- Driving behavior modeling for avoidance of road rushing out pedestrians in non-intersection areas -- Modelling the effect of sensory dynamics on a driver's control of a nonlinear vehicle -- Fundamental study on driver model for lateral and longitudinal control to advanced driver assistance systems -- Model

predictive control to represent interaction of driver and active accelerator pedal -- Inferring driver's deceleration intent in vehicle platoon system by using feedback estimators -- Driver's steering torque modeling based on lateral deviation and reaction torque -- Modelling human steering behaviour at the limit of adhesion using robust nonlinear model predictive control -- A skill learning process model for driving a car -- Steering -- In vehicle truck steering-system modeling and validation -- A design of the lead-steer in active front steering system using lead-lag compensator.

The influence of time delay on stability of the steering simulator -- Study on reactive steering torque control for bar type steering in high speed range -- Electric power steering -- H_{∞} filtering design for driver torque estimation in electric power steering system -- Design of equivalent friction using a motor control for Electric Power Steering (EPS) -- The relationship between the resonance frequency of a steering system and the tire-road friction coefficient -- Steer-by-wire/ADAS -- Upperbounds on the closed loop sensitivity for the control of a steer-by-wire vehicle -- Evaluation of handling performance in steer-by-wire vehicle -- Fault detection scheme for a road vehicle with four independent single-wheel electric motors and steer-by-wire system -- Study on active safety for aquaplaning assistance -- Subjective evaluation and handling -- Validation of a moving base driving simulator for subjective assessments of steering feel and handling -- Tire handling subjective evaluation related to model parameters of three driver models -- Special vehicles -- Intelligent based terrain preview controller for a 3-axle vehicle -- Optimal control of lateral stability for articulated heavy vehicles based on adaptive dynamic programming approach -- MiniMax - a situational and geometrical adaptive chassis: Driving safety and space efficiency -- A cascaded model-predictive approach to motorcycle safety -- Database -- Geostatistical meta-modeling for a model-based calibration of an adaptive shock absorber -- Predictive modeling for vehicle time-series data -- Study on cooperative driving of automated driving vehicles via spatial information server -- Database of relevant traffic scenarios as a tool for the development and validation of automated driving -- State estimation.

Full vehicle and tyre identification using unscented and extended identifying Kalman filters -- Model-based state estimator for an intelligent tire -- Nonlinear vehicle velocity estimation with friction adaption for four-wheel-independent-drive EVs -- Unscented Kalman filter for combined longitudinal and lateral vehicle dynamics -- Vehicle state estimation from a sports-car application point of view focusing on handling dynamics -- Exploring different vehicle model complexity for reference in a sensor signal processing model controller -- Articulation angle estimation and control for reversing articulated vehicles -- Tyre and friction -- Friction utilization for tyre-road friction estimation on snow: An experimental study -- Wheel force measurement for vehicle dynamics control using an intelligent bearing -- The influence of tire transient property on vehicle behavior -- Estimation of tire road friction during vehicle steering -- Longitudinal dynamics -- Adaptive anti-slip regulation method for distributed drive electric vehicle -- Perceptible changes in driving dynamics due to regenerative braking: Analysis and reduction through active chassis systems -- A development of nonlinear adaptive ABS control using optimal slip tracker -- Integration of torque blending and slip control using real-time nonlinear model predictive control -- Torque/G-Vectoring -- Study of mechanism improving target course traceability in G-Vectoring Control -- Development of G-Vectoring Control system

based on engine torque control -- Effect of yaw-moment control based on lateral jerk information on lane change task -- Model predictive control for active drive-torque distribution during a slalom manoeuvre -- Torque vectoring -- Evaluation of optimal yaw rate reference for electric vehicle torque vectoring.
Inversion based feedforward design to improve the lateral dynamics of high performance sports cars.

Sommario/riassunto

The AVEC symposium is a leading international conference in the fields of vehicle dynamics and advanced vehicle control, bringing together scientists and engineers from academia and automotive industry. The first symposium was held in 1992 in Yokohama, Japan. Since then, biennial AVEC symposia have been established internationally and have considerably contributed to the progress of technology in automotive research and development. In 2016 the 13th International Symposium on Advanced Vehicle Control (AVEC'16) was held in Munich, Germany, from 13th to 16th of September 2016. The symposium was hosted by the Munich University of Applied Sciences. AVEC'16 puts a special focus on automatic driving, autonomous driving functions and driver assist systems, integrated control of interacting control systems, controlled suspension systems, active wheel torque distribution, and vehicle state and parameter estimation. 132 papers were presented at the symposium and are published in these proceedings as full paper contributions. The papers review the latest research developments and practical applications in highly relevant areas of vehicle control, and may serve as a reference for researchers and engineers.
